

Reply to Office Action of December 31, 2009

AMENDMENTS TO THE CLAIMS

1. **(Withdrawn)** A method for producing a porous film according to claim 4, comprising the steps of casting a polymer solution comprising a polymer onto a substrate to form a film; and subjecting the film to phase conversion to thereby form a porous film, wherein the polymer constituting the porous film has a surface tension S_a [mN/m], wherein the substrate has a surface tension S_b [mN/m], and wherein S_a and S_b satisfy the following condition: $S_a - S_b \geq -10$.

2. **(Withdrawn)** The method for producing a porous film according to claim 1, further comprising the steps of casting a solution mixture as the polymer solution onto the substrate to form a film, and subjecting the film to phase conversion by bringing the film to a solidifying liquid to thereby form a porous film, the solution mixture comprising 8 to 25 percent by weight of a polymer component for constituting the porous film, 10 to 50 percent by weight of a water-soluble polymer, 0 to 10 percent by weight of water and 30 to 82 percent by weight of a water-soluble polar solvent.

3. **(Withdrawn)** The method for producing a porous film according to one of claims 1 and 2, further comprising the steps of holding the cast film in an atmosphere at a relative humidity of 70% to 100% and a temperature of 15°C to 90°C for 0.2 to 15 minutes, and bringing the film to a solidifying liquid comprising a nonsolvent for the polymer component.

4. **(Currently Amended)** A porous film having a number of continuous micropores, wherein the film has a thickness of 5 to 200 μm , has an average surface pore size A of $[[0.1]]$ 0.01 to 10 μm and an average surface porosity C and has an average inside pore size B and an average inside porosity D ,

wherein the ratio A/B of A to B is in the range of 0.3 to 3,

wherein a maximum surface pore size is 15 μm or less; the ratio A^1/A^2 of an average pore size at one surface A^1 to an average pore size at the other surface A^2 is from 0.6 to 1.5; the average surface porosity C has an average porosity C^1 of 48% or more at one surface and an average porosity C^2 of 48% or more at the other surface; the average inside porosity D is from 45% to 80%; and the ratio C/D of C to D is in the range of 0.7 to 1.5,

Reply to Office Action of December 31, 2009

wherein a polymer component forming the film comprises at least one selected from a group of amide-imide polymers, imide polymers, polyethersulfones, polysulfones, acrylic polymers or cellulose acetate,

wherein a Gurley permeability of the porous film is from 0.2 to 29 seconds per 100 cc, and

wherein the porous film is produced in a method comprising the steps of casting a polymer solution comprising a polymer onto a substrate to form a film; and subjecting the film to phase conversion to thereby form a porous film, wherein the polymer constituting the porous film has a surface tension S_a [mN/m], wherein the substrate has a surface tension S_b [mN/m], and wherein S_a and S_b satisfy the following condition: $S_a - S_b \geq -10$.

5. **(Currently Amended)** A porous film having a number of continuous micropores,

wherein the film has a thickness of 5 to 200 μm , has an average pore size A^1 of $[[0.1]]$ 0.01 to 10 μm at one surface, an average pore size A^2 of $[[0.1]]$ 0.01 to 10 μm at the other surface, an average porosity C^1 of 48% or more at one surface, and an average porosity C^2 of 48% or more at the other surface,

wherein the ratio A^1/A^2 of A^1 to A^2 is in the range of 0.6 to 1.5,

wherein the ratio C^1/C^2 of C^1 to C^2 is in the range of 0.7 to 1.5,

wherein a maximum surface pore size is 15 μm or less; the average inside porosity D is from 45% to 80%; the ratio C/D of C to D is in the range of 0.7 to 1.5,

wherein a polymer component forming the film comprises at least one selected from a group of amide-imide polymers, imide polymers, polyethersulfones, polysulfones, acrylic polymers or cellulose acetate,

wherein a Gurley permeability of the porous film is from 0.2 to 29 seconds per 100 cc, and

wherein the porous film is produced in a method comprising the steps of casting a polymer solution comprising a polymer onto a substrate to form a film; and subjecting the film to phase conversion to thereby form a porous film, wherein the polymer constituting the porous film has a surface tension S_a [mN/m], wherein the substrate has a surface tension S_b [mN/m], and wherein S_a and S_b satisfy the following condition: $S_a - S_b \geq -10$.

Reply to Office Action of December 31, 2009

6. **(Previously presented)** The porous film according to claim 4, wherein the Gurley permeability of the porous film is from 1 to 25 seconds per 100 cc.

7. **(Previously presented)** The porous film according to claim 4, wherein the Gurley permeability of the porous film is from 1 to 18 seconds per 100 cc.

8. **(Previously presented)** The porous film according to claim 5, wherein the Gurley permeability of the porous film is from 1 to 25 seconds per 100 cc.

9. **(Previously presented)** The porous film according to claim 5, wherein the Gurley permeability of the porous film is from 1 to 18 seconds per 100 cc.

10-19. **(Cancelled).**

20. **(Previously presented)** The porous film according to claim 4, wherein the film has an average porosity C^1 of from 60% to 80% at one surface and an average porosity C^2 of from 60% to 80% at the other surface.

21. **(Previously presented)** The porous film according to claim 5, wherein the film has an average porosity C^1 of from 60% to 80% at one surface, and an average porosity C^2 of from 60% to 80% at the other surface.